



UNITED STATES PATENT AND TRADEMARK OFFICE

UNITED STATES DEPARTMENT OF COMMERCE
United States Patent and Trademark Office
Address: COMMISSIONER FOR PATENTS
P.O. Box 1450
Alexandria, Virginia 22313-1450
www.uspto.gov

APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
-----------------	-------------	----------------------	---------------------	------------------

10/529,005

01/13/2006

Nobuhiro Hanafusa

NOG-0025

8793

74384

7590

12/02/2009

Cheng Law Group, PLLC
1100 17th Street, N.W.
Suite 503
Washington, DC 20036

EXAMINER

KOCH, GEORGE R

ART UNIT

PAPER NUMBER

1791

MAIL DATE

DELIVERY MODE

12/02/2009

PAPER

Please find below and/or attached an Office communication concerning this application or proceeding.

The time period for reply, if any, is set in the attached communication.

Office Action Summary	Application No. 10/529,005	Applicant(s) HANAFUSA ET AL.	
	Examiner George R. Koch III	Art Unit 1791	

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) OR THIRTY (30) DAYS, WHICHEVER IS LONGER, FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

- 1) ☐ Responsive to communication(s) filed on ____.
- 2a) ☐ This action is **FINAL**. 2b) ☒ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

- 4) ☒ Claim(s) 1-34 is/are pending in the application.
- 4a) Of the above claim(s) 10-14, 19-21, 24-29 and 33 is/are withdrawn from consideration.
- 5) ☐ Claim(s) ____ is/are allowed.
- 6) ☒ Claim(s) 1-9, 15-18, 22-23, 30-32, 34 is/are rejected.
- 7) ☐ Claim(s) ____ is/are objected to.
- 8) ☐ Claim(s) ____ are subject to restriction and/or election requirement.

Application Papers

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☐ The drawing(s) filed on ____ is/are: a) ☐ accepted or b) ☐ objected to by the Examiner.
Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).
Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
- 11) ☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. § 119

- 12) ☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☐ All b) ☐ Some * c) ☐ None of:
1. ☐ Certified copies of the priority documents have been received.
 2. ☐ Certified copies of the priority documents have been received in Application No. ____.
 3. ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

* See the attached detailed Office action for a list of the certified copies not received.

Attachment(s)

- | | |
|---|---|
| 1) <input checked="" type="checkbox"/> Notice of References Cited (PTO-892) | 4) <input type="checkbox"/> Interview Summary (PTO-413)
Paper No(s)/Mail Date. ____. |
| 2) <input type="checkbox"/> Notice of Draftperson's Patent Drawing Review (PTO-948) | 5) <input type="checkbox"/> Notice of Informal Patent Application |
| 3) <input checked="" type="checkbox"/> Information Disclosure Statement(s) (PTO/SB/08)
Paper No(s)/Mail Date ____. | 6) <input type="checkbox"/> Other: ____. |

DETAILED ACTION

Claim Rejections - 35 USC § 102

1. The following is a quotation of the appropriate paragraphs of 35 U.S.C. 102 that form the basis for the rejections under this section made in this Office action:

A person shall be entitled to a patent unless –

(e) the invention was described in (1) an application for patent, published under section 122(b), by another filed in the United States before the invention by the applicant for patent or (2) a patent granted on an application for patent by another filed in the United States before the invention by the applicant for patent, except that an international application filed under the treaty defined in section 351(a) shall have the effects for purposes of this subsection of an application filed in the United States only if the international application designated the United States and was published under Article 21(2) of such treaty in the English language.

2. Claim 1-9, 15-18, 22-23, 30-32, and 34 rejected under 35 U.S.C. 102(e) as being anticipated by Edwards (US 2004/0261700 A1), filed on May 31, 2002.

As to claim 1, Edwards discloses liquid dispensing apparatus (see Figure 1 for the general schematic) comprising:

a dispensing mechanism (the nozzle on a micro deposition head) including a dispensing device for dripping a sample or a reagent;

an image capturing device (camera 52 or 84) for capturing the downward area image;

a movable table (chuck 86) capable of supporting, on its upper surface, a target object onto which the sample or reagent is to be dispensed and being moved (see paragraph 0065, which discloses that as an alternative, the X and Y mechanisms can be associated with the substrate assembly) on a horizontal plane surface for positioning the target object at least at a dispensing position beneath the dispensing device and at an image capturing position beneath the image capturing device;

a monitoring section for displaying the image captured by the image capturing device (input/output interface 104);

Art Unit: 1791

a dispensing position designating section (alignment module 112; nozzle positioning and firing module) for designating the dispensing position on the target object based on the image of the target object displayed on the monitoring section (see also paragraph 0072, disclosing alignment);

and a dispensing control section (droplet analysis module 110) or positioning the target object and the dispensing device relative to each other so that the dispensing position on the target object designated by the dispensing position designating section is placed beneath the dispensing device of the dispensing mechanism and for controlling the dispensing operation of the dispensing mechanism.

As to claim 2, Edwards discloses multiple nozzles (see claim 1, lines 3-4, disclosing a plurality of spaced nozzles), and Edwards discloses that the dispensing mechanism includes a plurality of dispensing devices.

As to claim 3, Edwards discloses a dispensing position information creating section for creating dispensing position information about the dispensing position on the target object which is designated by the dispensing position designating section and for which the dispensing operation has been performed. See, for example, the drop analysis module, which is disclosed in paragraph 0108 as having adjustments made to the firing waveforms.

As to claim 4, Edwards discloses that the dispensing position information creating section is capable of outputting the created dispensing position information to the outside. See, for example, the drop analysis module, which is disclosed in paragraph 0108 as having adjustments made to the firing waveforms.

Art Unit: 1791

As to claim 5, Edwards is capable of being used such that the dispensing position designating section designates the dispensing position on the image of the target object displayed on the monitoring section.

As to claim 6, Edwards discloses an image capturing device for photographing the tip end of the dispensing device (see camera 50, which is used to control and interface with blotting station 70 for prevention of dried material on the nozzle)

As to claim 7, Edwards discloses an image capturing device for photographing the tip end of the dispensing device performing the dispensing operation, out of the dispensing devices, wherein the image capturing device is supported on a moving mechanism so that it is capable of being moved in association with the switching of the dispensing device performing the dispensing operation.

As to claim 8, Edwards discloses a dispensing apparatus comprising: a dispensing mechanism including a detachable dispensing device for dripping a sample or reagent; an image capturing device for capturing downward area image; a movable table capable of supporting, on its upper surface, a target object onto which the sample or reagent is to be dispensed and being moved on a horizontal plane surface for positioning the target object at least at a dispensing position beneath the dispensing device and at an image capturing position beneath the image capturing device; and a calibrating section which, after liquid is dispensed onto a predetermined position on the movable table by the dispensing mechanism, detects the dispensing position based on the image captured by the image capturing device and calibrates the dispensing position based on base points serving as references on the movable table, the base points being captured concurrently with the image. See the rejection of claim 1 above.

Art Unit: 1791

As to claim 9, Edwards discloses a the dispensing mechanism includes a plurality of dispensing devices and the calibrating section performs the calibration for the respective dispensing devices.

As to claim 15, Edwards discloses a dispensing apparatus comprising: a dispensing mechanism including a nozzle for dripping a sample or a reagent; a movable table capable of supporting, on its upper surface, a target object onto which the sample or reagent is to be dispensed and being moved on a horizontal plane surface for positioning the target object beneath the nozzle; and an image capturing device placed on a plane surface, within the range of movement of the movable table and mounted at a position above the movable table for preventing contact therewith, wherein the image capturing device photographs the tip end of the nozzle at an angle from above. See the rejection of claim 1 and 6 above.

As to claim 16, Edwards discloses a a light source (stroke 85)is placed at the position opposite to the image capturing device with respect to the tip end of the nozzle and the light source is oriented in such a direction that light emitted from it is reflected at the surface of the target object, then passes through the tip end of the nozzle and enters the image capturing device.

As to claim 17, Edwards discloses a the image capturing device (item 52)photographs the shape of a liquid drop formed at the tip end of the nozzle as the image of the nozzle tip end.

As to claim 18, Edwards discloses a image capturing device (item 84) is set to capture an image of the surface of the target object beneath the nozzle along with the image of the tip end of the nozzle.

Art Unit: 1791

As to claim 22, Edwards discloses a dispensing apparatus comprising: a dispensing unit including a piezo chip having a downward opening portion at its discharging portion, the piezo chip being configured to discharge liquid from the discharging portion when liquid charged in a space communicated to the discharging portion is pushed by a driving section including a piezo device, a pressure control mechanism for adjusting the pressure of the liquid charged in the space; an image capturing device for capturing an image of the discharging portion; a storing device for storing the image captured by the image capturing device; and a control device which compares the image of the discharging portion captured before charging liquid in the space and stored in the storing device with images captured after charging liquid in the space and controls the pressure control mechanism so that, when liquid exits from the discharging portion, the liquid is retracted until the differences between the images and the image captured before charging liquid is cancelled. See the rejection of claim 1 above.

As to claim 23, Edwards is capable of being used such that the image capturing device is installed so that it captures the image of the discharging portion along a horizontal direction.

As to claim 30, Edwards is capable of being used such that the dispensing position information creating section is capable of outputting the created dispensing position information to the outside.

As to claim 31, Edwards is capable of being used such that the dispensing position designating section designates the dispensing position on the image of the target object displayed on the monitoring section.

Art Unit: 1791

As to claim 32, Edwards is capable of being used such that the dispensing position designating section designates the dispensing position on the image of the target object displayed on the monitoring section.

As to claim 34, Edwards is capable of being used such that the image capturing device is set to capture an image of the surface of the target object beneath the nozzle along with the image of the tip end of the nozzle.

Any inquiry concerning this communication or earlier communications from the examiner should be directed to George R. Koch III whose telephone number is (571) 272-1230. The examiner can normally be reached on M-F 9-5.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Philip Tucker can be reached on (571) 272-1095. The fax phone number for the organization where this application or proceeding is assigned is 571-273-8300.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see <http://pair-direct.uspto.gov>. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free). If you would like assistance from a USPTO Customer Service Representative or access to the automated information system, call 800-786-9199 (IN USA OR CANADA) or 571-272-1000.

/George R. Koch III/

Application/Control Number: 10/529,005

Page 8

Art Unit: 1791

Primary Examiner, Art Unit 1791

11/23/2009